

VITAE

RICHARD E. MIERS

Professor Emeritus of Physics

Indiana-Purdue University Fort Wayne,

Fort Wayne, IN 46805

Education

University of Wisconsin, Madison, Aug, 1964 - Aug, 1969; Major: Experimental Atomic Physics; Ph. D., Jan, 1970. Jun, 1959 - Aug, 1961, Majors: Education/Physics; M.S. Education/Physics Jan, 1961; M.S. Physics Jun, 1961.

Wisconsin State College, La Crosse, Sep, 1950 - Jun 1953; Sep, 1955 - Jun, 1957; Major: Physical Science; B.S. Secondary Education Jun, 1957.

Employment

Purdue University, Fort Wayne, IN; Sep, 1961 to 2003; Assoc Prof Physics.

University of Wisconsin, Madison, WI; Aug, 1987 to Aug, 1988; Aug, 1980 to Aug, 1981; Visiting Assoc Prof of Physics (On leave from Purdue U); Summers 1982, 1983, 1986, 1987, 1988; Visiting Assoc Prof of Physics.

Monsanto Research Corporation, Miamisburg, OH; Summers, 1974 to 1980, 1985, Physicist; 1974 to 1980, 1985 to 1986; Consultant.

Argonne National Laboratory, Argonne, IL; Summer, 1973; Visiting Scientist.

University of Wisconsin, Madison, WI; Summer, 1971; Visiting Asst Prof of Physics.

Cadott High School, Cadott, WI; Sep, 1957 to Jun, 1959; Teacher Science/Math.

Research Experience

Optical pumping, Experiments on charge changing cross sections, molecular beam scattering cross-sections, electron excitation cross-sections using laser induced fluorescence, excitation cross-sections of Na vapor using fast H beams, Ion distribution in chemical vapor deposition plasmas. Designed and constructed polarized ion source, ion beam system, charge exchange apparatus, optical pumping apparatus, electronic instrumentation, optogalvanic devices, Assembled and tested quadrupole mass filter atomic beam detector, single wheel molecular beam velocity selector.

Current Research

Construction and testing of pulsed nitrogen lasers. Construction of tuned dye lasers. Development and testing of fiber laser preamplifier for laser radar systems. Diode laser spectroscopy. Optical pumping with diode lasers.

Teaching Experience

General Physics, Atomic Physics, Classical Mechanics, Electric and Magnetic Fields, Optics, Electronics, Electronics Laboratory, Engineering Circuit Analysis, Advanced Undergraduate Laboratories, Undergraduate student special projects in Laser Physics.

Fellowships

AFOSR (RDL) Summer Research Fellow, 1991, AFOSR (UES) Summer Research Fellow, 1990, AFOSR (SCEEE) Summer Research Fellow, 1984, Monsanto Research Corp. Mound Lab University Research Program, Summers, 1977, 1979, 1980, 1985, University of Wisconsin Graduate School Fellowship, 1968, Science Faculty Fellowship, NSF, 1965.

Teaching Workshops

NSF Undergraduate Faculty Enhancement Workshops in "Laser/Electro-optic Technology", Aug 5-16, 1991 and "Advanced Laboratory Experiments Using Lasers", Aug. 2-13, 1993, Univ of Tennessee, Knoxville. NSF Faculty Enhancement Workshops "Physics Revolutions in Your Lifetime" Miami University, Oxford, OH May 13-16, 1993 and Argonne Natl Lab, IL, May 20-21, 1994. NSF Sponsored Chautauqua Short Courses, "Principles of Flight" 21-23 July, 1993, "Inexpensive Computer Interfacing", May 11-13, 1994, Univ of Dayton, Dayton, OH. and "A Diode-Laser Experiments Workshop, Calvin College, Grand Rapids MI, June 19-23, 1995.

Professional Organizations

American Physical Society, American Association of Physics Teachers, Sigma Xi

Most Recent Publications

- D. Hite, M. Deebel, E. Thoreson, C. Lengacher, R. E. Miers, M. F. Masters, Am. J. Phys. ,in press "Construction of a Heat Pipe Oven on a Small Budget".
- M. F. Masters, R. E. Miers, Am. J. Phys, 65, 254, (1997) "Use of a Digital Oscilloscope as a spectrum Analyzer in the Undergraduate Laboratory".
- P.A. Voytas, J. E. Schewe, P. A. Quin, L. W. Anderson, and R. E. Miers, AIP Conference Proceedings - 293 Polarized Ion Sources and Polarized Gas Targets L. W. Anderson and Willy Haeberli Editors, 208, (1993) "Target for Producing Polarized ^{21}Na by Optical Pumping."
- R. E. Miers, 1991 USAF-RDL Summer Faculty Research Program Reports, V 5.A. Wright Lab Report 26, WPAFB, OH, "Fiber Laser Preamplifier for Laser Radar Detectors"
- R. B. Lockwood, R. E. Miers, L. W. Anderson, J. E. Lawler, and C. C. Lin, Appl. Phys. Lett. 55, 1385, (1989) "Effect of Water Vapor on a Methane-Hydrogen Discharge Plasma".
- R. E. Miers, R. W. York, P. T. Pickett, and W. L. Taylor, Rev. of Sci. Instr. 72, 1302, (1988) "Narrow-band Velocity Selector for Neutral Particles".
- E. Thoreson, M. Terrell, M. Deebel, R. E. Miers, M. F. Masters, Bull. Am. Phys. Soc. 41, , 1124 (May, 1996) "Argon Excimer Emission from a Pulsed Discharge Excited Pulsed Supersonic Slit Expansion."
- M. Deebel, R. E. Miers, M. F. Masters, Bull. Am. Phys. Soc. 40, 1317, (May,1995) "Argon Excimer Emission from a Discharge Excited Slit Supersonic Expansion."
- B. Koehlinger, M. Terrell, M. F. Masters, R. E. Miers, Bull. Am. Phys. Soc. 40, 1338, (May,1995) "Gain and Signal to Noise Tests in Nd-Doped Fiber Laser Amplifier."

Other Publications

- R. E. Miers and L. W. Anderson, Rev. of Sci. Instr., 39, 336, (1968) "A Source of Polarized Lithium and Cesium Ions".
- R. E. Miers, A. S. Schlachter, and L. W. Anderson, Phys. Rev., 183, 213, (1969) "Production and Loss of Fast Metastable Helium Atoms in Collisions with Xe, H₂, Ar, and He".
- R. E. Miers and L. W. Anderson, Phys. Rev. A, 1, 534, (1970) "Production and Loss of Fast Metastable Helium Atoms in Collisions with Permanent Gases".
- R. E. Miers and L. W. Anderson, Phys. Rev. A, 1, 819, (1970) "Ionization of Fast He⁰ in the Triplet Metastable State".
- R. E. Miers and W. D. C. Moebs, Am. J. Phys., 42, 603, (1974) "A Simple Demonstration of Amplitude Modulation and Beats".
- R. W. York, W. L. Taylor, P. T. Pickett, and R. E. Miers, Proc. of the 10th Int. Conf. of Rarefied Gas Dynamics, Aspen, Colorado, 1975, (1976) "Low Energy Total Cross Sections For the Argon-Krypton System".
- Mark H. Phillips, L. W. Anderson, C. C. Lin, and R. E. Miers, Phys. Letters 82A, 404, (1981) "The Electron Excitation Cross Section for the Metastable 1s₃ level in Ne".
- R. E. Miers, J. E. Gastineau, Mark H. Phillips, L. W. Anderson, and Chun C. Lin, Phys. Rev. A 25, 1185, (1982) "The Electron Excitation Cross Sections for the 1s₂ and 1s₄ Levels in Ne".
- A. M. Howald, R. E. Miers, James S. Allen, L. W. Anderson and Chun C. Lin, Phys. Lett. 92A, 328, (1982) "Excitation of the Na(3p) Level by H⁺, H₂⁺, H₃⁺ Ions".
- A. M. Howald, R. E. Miers, James S. Allen, L. W. Anderson, and Chun C. Lin, Phys. Rev. A 29, 1083, (1984) "Charge Changing Cross Sections for 1-25 keV H(1s) Incident on a Na Vapor Target".
- R. E. Miers, R. W. York, P. T. Pickett, and W. L. Taylor, Rev. of Sci. Instr. 72, 1302, (1988) "Narrow-band Velocity Selector for Neutral Particles".
- R. B. Lockwood, R. E. Miers, L. W. Anderson, J. E. Lawler, and C. C. Lin, Appl. Phys. Lett. 55, 1385, (1989) "Effect of Water Vapor on a Methane-Hydrogen Discharge Plasma".
- P.A. Voytas, J. E. Schewe, P. A. Quin, L. W. Anderson, and R. E. Miers, AIP Conference Proceedings - 293 Polarized Ion Sources and Polarized Gas Targets L. W. Anderson and Willy Haeberli Editors, 208, (1993) "Target for Producing Polarized ²¹Na by Optical Pumping".

Abstracts, Presentations

- R. E. Miers and L. W. Anderson, Bull. of the Am. Phys. Soc., 13, 67, (1968) "A Source of Polarized Lithium and Cesium Ions".
- R. E. Miers, M. H. Phillips, L. W. Anderson, and C. C. Lin, Bull. Am. Phys. Soc. 26, 48, (1981) "Electron Excitation Cross Sections of the 1s₅(³P₂) and 1s₃(3P₀) Metastable Levels of Ne".

R. E. Miers, J. E. Gastineau, M. H. Phillips, L. W. Anderson, and Chun C. Lin, XII Int. Conf. on the Physics of Electronic and Atomic Collisions, Gatlinburg, Tenn., (1981), Abstracts of Contributed Papers, 158 "The Use of Radiation Trapping in the Measurement of the Electron Excitation Cross Section For the Production of the $1s_4(^3P_1)$ Level of Ne".

M. H. Phillips, R. E. Miers, L. W. Anderson, and C. C. Lin, XII Int. Conf. on the Physics of Electronic and Atomic Collisions, Gatlinburg, Tenn., (1981), Abstracts of Contributed Papers, 160 "A Method for Measuring The Electron Excitation Cross Sections for the Production of Atoms in Metastable Levels".

M. H. Phillips, J. E. Gastineau, R. E. Miers, L. W. Anderson, and C. C. Lin, Bull. Am. Phys. Soc. 27, 120, (1982) "Use of Laser-Induced Fluorescence to Study Electron Excitation and Collisional Excitation Transfer of Atoms".

A. M. Howald, R. E. Miers, James S. Allen, L. W. Anderson, and Chun C. Lin, Bull. Am. Phys. Soc. 28, 815, (1983) "Excitation of the Na(3p) Level by H^+ , H_2^+ , H_3^+ Ions".

L. W. Anderson, James S. Allen, Chun C. Lin, A. M Howald, and R. E. Miers, 39th Gaseous Electronics Conference, Madison, WI, Oct, 7-10, 1986 "Collisional Excitation of Na to the 3p and 3d levels by Fast H^+ , H_2^+ , H_3^+ , H^0 , and H ".

R. E. Miers, L. W. Anderson, J. E. Lawler, C. C. Lin, and R. B. Lockwood, 41st Gaseous Electronics Conference, Minneapolis, MN, Oct. 18-22, 1988 "Relative Abundance of Ions in CH_4 - H_2 Discharge Plasma".